

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

IN RE FLINT WATER LITIGATION

Case No. 5:16-cv-10444-JEL-EAS
Hon. Judith E. Levy, District Judge


This Document Relates To:
BELLWETHER III

Case No. 5:17-cv-10164-JEL-KGA

**DEFENDANTS VEOLIA NORTH AMERICA, LLC, VEOLIA NORTH
AMERICA, INC., AND VEOLIA WATER NORTH AMERICA
OPERATING SERVICES, LLC’S MOTION TO EXCLUDE CERTAIN
OPINIONS AND RELATED TESTIMONY OF JENNIFER A. SAMPLE,
M.D.**

Pursuant to Federal Rules of Evidence 702, Defendants Veolia North America, LLC, Veolia North America, Inc., and Veolia Water North America Operating Services, LLC (VNA) move to exclude certain opinions and related testimony of Bellwether III Plaintiffs’ expert Dr. Jennifer A. Sample. Because Dr. Sample was not offered as an expert in Bellwether I or in the class action, VNA has not previously challenged her opinions under *Daubert*.

In her expert report, rebuttal report, and deposition testimony, Dr. Sample offers opinions about the relationship between lead exposure and the types of injuries that Plaintiffs claim to have suffered as a result of the Flint water crisis. But Dr. Sample cites no studies or other data to support her opinions that lead exposure can cause [REDACTED]

 These general-causation opinions thus should be excluded under Federal Rule of Evidence 702 because they are not supported by sufficient facts or data.

Dr. Sample also offers opinions that exposure to lead during the Flint water crisis caused Plaintiffs' alleged injuries. These specific-causation opinions are inadmissible under Rule 702 because Dr. Sample lacks reliable data about the amount, duration, and frequency of Plaintiffs' exposures; because Dr. Sample has not reliably demonstrated that Plaintiffs' supposed exposure to lead during the water crisis was sufficient to cause their injuries; and because Dr. Sample failed to rule out significant potential alternative causes of Plaintiffs' conditions, including alternative sources of lead exposure.

As Local Rule 7.1(a) requires, on April 1, 2024, VNA sent counsel for Bellwether III Plaintiffs an email identifying each of the points raised in this motion. That same day, counsel for the Bellwether III Plaintiffs said that they did not concur in the motion.

Respectfully submitted,

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Dated: April 3, 2024

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**DEFENDANTS VEOLIA NORTH AMERICA, LLC, VEOLIA NORTH
AMERICA, INC., AND VEOLIA WATER NORTH AMERICA
OPERATING SERVICES, LLC’S BRIEF IN SUPPORT OF THEIR
MOTION TO EXCLUDE CERTAIN OPINIONS AND RELATED
TESTIMONY OF JENNIFER A. SAMPLE, M.D.**

STATEMENT OF THE ISSUES PRESENTED

1. Should the Court exclude Dr. Jennifer A. Sample's opinions that lead exposure can cause [REDACTED]

because those opinions are not supported by sufficient facts or data?

VNA answers: "Yes."

Plaintiffs answer: "No."

2. Should the Court exclude Dr. Sample's specific-causation opinions that Plaintiffs' alleged exposure to lead during the Flint water crisis caused their alleged injuries because Dr. Sample lacks reliable data about the amount, duration, and frequency of Plaintiffs' exposures; because Dr. Sample has not reliably demonstrated that Plaintiffs' supposed exposure to lead during the water crisis was sufficient to cause their injuries; or because Dr. Sample failed to reliably rule out significant potential alternative causes of Plaintiffs' conditions?

VNA answers: "Yes."

Plaintiffs answer: "No."

CONTROLLING OR MOST APPROPRIATE AUTHORITIES

Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579 (1993)

Lowery v. Enbridge Energy L.P., 500 Mich. 1034 (2017)

McClain v. Metabolife Int'l, Inc., 401 F.3d 1233 (11th Cir. 2005)

Nelson v. Tenn. Gas Pipeline Co., 243 F.3d 244 (6th Cir. 2001)

Pluck v. BP Oil Pipeline Co., 640 F.3d at 671 (6th Cir. 2011)

Powell-Murphy v. Revitalizing Auto Communities Env't Response Tr., 333 Mich. App. 234 (2020)

Tamraz v. Lincoln Elec. Co., 620 F.3d 665 (6th Cir. 2010)

Fed. R. Evid. 702

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INTRODUCTION

Dr. Jennifer Sample is a medical doctor with a background in clinical treatment of lead-exposed children. This motion focuses on Dr. Sample's opinions about seven children who are scheduled for the Bellwether III trial: Y.A., E.A., G.B., C.D., R.E., J.N., and J.S. (Plaintiffs).¹ Dr. Sample provides opinions on both general and specific causation. First, she opines that each Plaintiff's alleged injuries could have been caused by exposure to lead. Second, she opines that each Plaintiff's injuries were, in fact, caused by their exposure to an increased amount of lead in Flint's water during the water crisis. Some of Dr. Sample's general-causation opinions and all of her specific-causation opinions are unreliable and should be excluded.

Dr. Sample's general-causation opinions that lead exposure is capable of causing [REDACTED] [REDACTED] lack any scientific basis. Plaintiffs' psychological experts, Dr. Mira Jourdan and Dr. Edward Hoffman, have diagnosed [REDACTED] [REDACTED] [REDACTED]

¹ To be precise, the guardians of Y.A., E.A., G.B., C.D., R.E., J.N., and J.S. are the actual plaintiffs. But for the sake of simplicity, VNA refers to Y.A., E.A., G.B., C.D., R.E., J.N., and J.S. as Plaintiffs.

Ex. 2, Report (J.S.) 21; Ex. 3, Report (R.E.) 21; Ex. 4, Report (Y.A.) 23. Ex 5 Report (J.N.) 21; Ex 6, Report (G.B.) 23-24. Dr. Sample, however, admits that she is not aware of any academic literature demonstrating an association—much less causation—between lead exposures like those here

Ex. 7, Dep. (3/20/24) 93:11-15, 100:11-14, 96:22-97:21. Further, Dr. Sample admitted that no health organization has concluded or stated that lead causes

Ex. 8, Dep. (10/3/23) 360:16-19. Dr. Sample likewise did not include in her reports a single study specifically linking lead exposures like those here to either or

All of Dr. Sample's specific-causation opinions should be excluded for three reasons. First, they are not based on reliable data about the amount, duration, and frequency of Plaintiffs' exposures. Dr. Sample lacks any reliable basis for concluding that Plaintiffs were exposed to material amounts of additional lead after the City of Flint began drawing its water from the Flint River, let alone that Plaintiffs experienced elevated exposures after VNA's involvement in Flint. Indeed, she makes no effort to quantify Plaintiffs' exposures during any relevant period of time.

Second, Dr. Sample does not identify any evidence establishing the amount of lead exposure necessary to cause the injuries alleged. Instead, she relies on the theory that any exposure to lead can cause the injuries that Plaintiffs claim to have

sustained. But she cites nothing to support that theory—which runs contrary to fundamental principles of toxicology.

Third, Dr. Sample failed to rule out significant potential alternative causes of Plaintiffs’ conditions. In particular, she did not systematically examine whether Plaintiffs’ purported injuries could have been caused by recognized sources of lead exposure other than Flint water during the water crisis. Because she failed to reliably rule out significant alternative causes of Plaintiffs’ injuries, her specific-causation opinions are not reliable and should be excluded.

BACKGROUND

Dr. Sample opines that Plaintiffs’ injuries were caused by their exposure to lead in Flint’s water between April 2014 and October 2015, when the City was sourcing its water from the Flint River. For each Plaintiff, Dr. Sample prepared a report. The statements and opinions in her reports pertinent to this motion are as follows:

Plaintiffs’ Injuries. Although Dr. Sample met with Plaintiffs and their parents, she did not perform physical examinations or neurological assessments of Plaintiffs. Instead, she relied entirely on the examinations and diagnoses performed by Dr. Hoffman and Dr. Jourdan. Dr. Sample states that Plaintiffs were diagnosed with the following conditions:

- Y.A.: [REDACTED]
[REDACTED]
[REDACTED] Report
(Y.A.) 22-23.
- E.A.: [REDACTED]
[REDACTED]
[REDACTED] Ex. 9, Report (E.A.) 24.
- G.B.: [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Report (G.B.) 23-24.
- C.D.: [REDACTED]
[REDACTED]
[REDACTED] Ex. 10, Report (C.D.)
20-21.
- R.E.: [REDACTED]
[REDACTED] Report (R.E.) 21.
- J.N.: [REDACTED]
[REDACTED] Report (J.N.) 21.

- J.S.: [REDACTED]
[REDACTED]
[REDACTED] Report (J.S.) 21.

Dr. Sample opines that each of these conditions was caused by exposure to lead in Flint water. *See* Report (Y.A.) 22-23; Report (E.A.) 24; Report (G.B.) 23-24; Report (C.D.) 20-21; Report (R.E.) 21; Report (J.N.) 21; Report (J.S.) 21.

Harmful Effects of Lead. Dr. Sample's general-causation opinions do not focus on the particular disorders Drs. Hoffman and Jourdan diagnosed. Rather, Dr. Sample provides a general discussion of the alleged physical and neuropsychological effects of lead exposure.

Plaintiffs' Exposures to Lead. Dr. Sample notes that each Plaintiff drank tap water during the water crisis, but does not quantify their consumption. *See* Report (Y.A.) 23; Report (E.A.) 24; Report (G.B.) 24; Report (C.D.) 21; Report (R.E.) 21; Report (J.N.) 21; Report (J.S.) 21. She summarizes third-party studies related to the alleged increase in water lead levels in Flint during the time when the City drew its water from the Flint River. *E.g.*, Report (J.S.) 11-13 (discussing Kelsey J. Pieper, et al., *Evaluating Water Lead Levels During the Flint Water Crisis*, 52 *Env't Sci. & Tech.*, 8124-8132 (2018)). But she acknowledges that she has no information about the actual (or even estimated) water lead levels in Plaintiffs' homes. *See, e.g.*, Dep. (10/3/23) 343:13-344:10. Instead, she relies on reports from Plaintiffs' parents that

their water was discolored or had an unpleasant odor, which, she says, suggests (but does not prove) that the water contained lead. *See, e.g., id.*

Plaintiffs' Blood Lead And Bone Lead Levels. Dr. Sample opines that each Plaintiff had been exposed to lead based on bone lead levels detected by Dr. Aaron Specht. *See* Ex. 10, Dep. (10/2/23) 114:8-12, 120:5-9; Report (Y.A.) 11; Report (E.A.) 11; Report (G.B.) 12; Report (C.D.) 9; Report (R.E.) 9; Report (J.N.) 9; Report (J.S.) 9-10. Dr. Sample admitted, however, that she has no experience with bone lead testing and has never before relied on bone lead levels to evaluate children's lead exposures. *See* Dep. (10/2/23) 115:13-16.

LEGAL STANDARD

District courts have a “basic gatekeeping obligation” to ensure that expert testimony is “relevant to the task at hand” and “rests on a reliable foundation.” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141, 147 (1999) (quoting *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 597 (1993)). A qualified expert may provide opinion testimony only if it will “help the trier of fact to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702(a). The expert opinion also must be “based on sufficient facts or data,” must be “the product of reliable principles and methods,” and must be the result of the expert “reliabl[y] appl[ying] [] the principles and methods to the facts of the case.” Fed. R. Evid. 702(b)-(d). The proponent of expert testimony bears the burden of establishing its admissibility by a

preponderance of evidence. *Nelson v. Tenn. Gas Pipeline Co.*, 243 F.3d 244, 251 (6th Cir. 2001) (citing *Daubert*, 509 U.S. at 593-94).

ARGUMENT

I. DR. SAMPLE’S OPINIONS THAT EXPOSURE TO LEAD CAUSES CERTAIN CONDITIONS ARE UNRELIABLE

A plaintiff in a toxic-tort case must establish general causation—that the toxic substance in question is capable of causing the specific injury alleged by the plaintiff. *Powell-Murphy v. Revitalizing Auto Communities Env’t Response Tr.*, 333 Mich. App. 234, 964 N.W.2d 50 (2020); *see* VNA’s Mot. to Exclude The Testimony and Reports of William G. Bithoney, M.D. in Bellwether I, No. 5:17-cv-10164-JEL-MKM, ECF No. 335, PageID.19832 (Bithoney BWI Mot.) (citing case law and describing the requirements for proving general causation under Michigan law).

Here, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Report (J.S.) 21; Report (R.E.) 21; Report Y.A. 23; Report (J.N.) 21; Report (G.B.) 23-24. Dr. Sample opines that exposure to lead can cause all five of these conditions, Dep. (10/2/23) 111:8-15, but she identifies no scientific evidence to support those opinions. In her rebuttal report, Dr. Sample concedes that she “do[es] not cite studies

which show the specific diagnostic labels chosen by Drs. Jourdan and Hoffman are associated or caused by lead.” Ex. 12, Rebuttal Report 10-11.

Indeed, over the course of her two depositions, Dr. Sample admitted that she “d[i]dn’t know what” the diagnostic criteria for [REDACTED] are, and that she was unaware of any studies showing that lead exposures below five micrograms per deciliter are capable of causing that condition. Dep. (3/20/24) 93:4-15. And Dr. Sample admitted that she could not identify the causes of [REDACTED] and thus had no data connecting to lead exposure to that condition. Dep. (10/2/23) 154:23-155:1.

The same is true for her diagnosis of [REDACTED]. Asked at her deposition whether she was “aware of any studies that show that low-level lead exposures are associated with or cause [REDACTED]” Dr. Sample replied simply, “No.” Dep. (3/20/24) 100:11-14.

With respect to [REDACTED], Dr. Sample admitted that she was not aware of any health organization that has concluded or has stated that exposure to lead can cause that condition. Dep. (10/3/23) 360:19.

Dr. Sample likewise did not cite a single study in any of her reports, or discuss any such study in her deposition testimony, specifically linking [REDACTED] [REDACTED] to lead exposure. As this Court has explained, an expert must explain the relationship between “characteristic

symptoms” of particular conditions and the diagnosis of these conditions. Order Denying VNA Mot. To Exclude Bithoney (Bithoney BWI Order) 20, ECF No. 487, PageID.36883 (“Dr. Bithoney may not provide general causation testimony to the effect that these particular diagnoses are known to be caused by lead poisoning.”). Because Dr. Sample does not cite any studies or other evidence in support of her opinions that [REDACTED]

[REDACTED] can be caused by exposure to lead, those opinions are unreliable should be excluded.

II. DR. SAMPLE’S SPECIFIC-CAUSATION OPINIONS ARE UNRELIABLE

As this Court has explained, to prove specific causation in a toxic-tort case under Michigan law, a plaintiff must show “(1) a toxic exposure, (2) at a sufficient level to cause injury, (3) that in fact caused the injury.” Bithoney BWI Order, 21-22, PageID.36884-36885 (citing *Powell-Murphy*, 333 Mich. App. at 250).

Here, each Plaintiff must establish that (1) as a result of VNA’s alleged negligence, he or she was actually exposed to additional lead in Flint water during the water crisis; (2) his or her “level of exposure was sufficient to induce [his or her] complained-of medical condition,” *Pluck*, 640 F.3d at 677; and (3) exposure to additional lead during the water crisis, as opposed to other “reasonably relevant potential causes,” actually did cause his or her injury. *Powell-Murphy*, 333 Mich.

App. at 250 (quoting *Lowery*, 500 Mich. at 1046 (Markman, C.J., concurring)); *Pluck v. BP Oil Pipeline Co.*, 640 F.3d at 671, 677-78 (6th Cir. 2011).

Dr. Sample's opinions fail all three requirements. *First*, her opinion that Plaintiffs were exposed to elevated lead in their drinking water during the water crisis is not supported by sufficient facts or data. *Second*, she fails to offer a reliable opinion about the threshold dose of lead needed to cause Plaintiffs' claimed injuries. She thus cannot reliably opine that Plaintiffs' exposures were sufficient to cause their alleged injuries. *Third*, she does not rule out significant possible alternative causes of Plaintiffs' alleged injuries.

A. Dr. Sample Failed To Conduct A Reliable And Sufficient Exposure Assessment

"A causation expert in a toxic tort case must always support his opinion with a reliable dose assessment." *Hendrian v. Safety-Kleen Sys., Inc.*, No. 08-cv-14371, 2014 WL 12658970, at *2 (E.D. Mich. Jan. 23, 2014); *see Pluck*, 640 F.3d at 677 (excluding specific-causation expert because expert failed to reliably estimate the plaintiff's exposure to toxin). Here, Dr. Sample did not support her opinions with a reliable dose assessment for any of the Plaintiffs, and her specific-causation opinions are thus unreliable.

1. Dr. Sample Lacked A Sufficient Factual Basis For Her Conclusion That Plaintiffs Were Exposed To Elevated Levels Of Lead In Drinking Water

Dr. Sample asserts that all seven Plaintiffs were exposed to additional lead in their tap water during the water crisis. *See* Report (Y.A.) 23; Report (E.A.) 24; Report (G.B.) 24; Report (C.D.) 21; Report (R.E.) 21; Report (J.N.) 21; Report (J.S.)

21. Dr. Sample lacks a reliable basis for that conclusion.

Dr. Sample acknowledged repeatedly at her deposition that she had no data showing the amount of lead in Plaintiffs' residential tap water during the water crisis. *See, e.g.*, Dep. (10/2/23) 215:13-16, 262:17-20; Dep. (10/3/23) 414:5-23, 448:12-18, 467:4-14. She could not identify a single water lead test performed by any of the Plaintiffs at any point during the relevant period. She therefore had no reliable evidence that any Plaintiff was exposed to increased lead in tap water after the City began using water from the Flint River.²

Instead of scientific testing for lead, Dr. Sample relies on statements from laypeople describing the water in Plaintiffs' homes as being discolored or having a foul odor. But Dr. Sample does not identify even a single scientific source indicating that there is an association between water discoloration or odor and elevated lead levels. As VNA's expert, Dr. William Banner, explains in his report, this is an

² Dr. Sample concedes that "multiple studies" demonstrate the presence of lead in Flint tap water before the water crisis. *See, e.g.*, Report (R.E.) 12.

unscientific and unreliable inference and is insufficient to support Dr. Sample's opinion about Plaintiffs' exposures. *See* Ex. 13, Banner Report 21 (explaining that Dr. Bithoney incorrectly inferred that "the change in water color is indicative of the lead content" and that "[t]he change in color was due to the iron content"). None of Plaintiffs' water experts contend otherwise.

Because Dr. Sample lacks reliable information about the level of lead in Plaintiffs' drinking water, her opinion that exposure to lead in drinking water during the water crisis caused Plaintiffs' conditions is unreliable. *See* Bithoney BWI Mot. 20-21, PageID.19842-19843 (citing case law). Although the Court previously rejected VNA's argument that such specific evidence of exposure to elevated lead in Flint water is required (Bithoney BWI Order 24, PageID.36887), VNA seeks reconsideration of that decision. And as explained below, Dr. Sample also lacked any other reliable data demonstrating that Plaintiffs were exposed to excessive lead in Flint water during the relevant time period.

2. The Population-Level Study That Dr. Sample Cites Does Not Support Her Opinion That These Seven Plaintiffs Were Exposed To Elevated Levels Of Lead In Drinking Water

Dr. Sample says that there are "[m]ultiple studies and assessments" that "have been conducted" showing "the ubiquitous elevated lead levels in the water throughout the City of Flint." Report (C.D.) 12. She cites a single population-level study suggesting that the levels of lead in Flint's water increased after the change in

water sources. *See id.* (citing Kelsey J. Pieper, et al., *Evaluating Water Lead Levels During the Flint Water Crisis*, 52 Env't Sci. & Tech, 8124-8132 (2018)).

This study provides no direct information about the amount of lead in Plaintiffs' tap water. And the zip-code-specific information in the study affirmatively undermines Dr. Sample's opinions. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Furthermore, not only does this study fail to establish any actual exposure for these seven Plaintiffs, it also is methodologically insufficient to establish an increased exposure during the water crisis. The study did not involve a comparison between water lead levels at homes before and during the water crisis. And, as VNA's expert toxicologist, Dr. Finley, explains, many houses in Flint likely had water lead levels above 15 ppb even before the water crisis. Ex. 14, Finley Report 17.

Unlike Dr. Bithoney, moreover, who "hired a graduate student to analyze potential sources of lead in Plaintiffs' neighborhoods," Bithoney BWI Order 26, PageID.36889, Dr. Sample merely cited the study and assumed that all of the Plaintiffs were exposed to elevated levels of lead in the water in their homes. But

for the reasons discussed in VNA’s motion to exclude the testimony of Dr. Bithoney in the Bellwether I trial, this study does not show that every home—or even most homes—in Flint experienced elevated water lead levels. *See* Bithoney BWI Mot. 24-25, PageID.19846-19851. In fact, only a minority of homes had elevated lead levels, [REDACTED]

[REDACTED] The study therefore does not provide a reliable basis for Dr. Sample’s opinion that these Plaintiffs were exposed to elevated amounts of lead in their drinking water after the switch to Flint River water.

3. Plaintiffs’ Blood Lead Levels Undermine Dr. Sample’s Exposure Assessment

There is a broad scientific consensus that blood lead testing, preferably from a venous blood draw, is the best means of assessing an individual’s lead exposure. The CDC states that “[b]lood lead measurement is the preferred method of evaluating lead exposure and its human health effects. [Blood lead levels] reflect both recent intake and equilibration with stored lead in other tissues, particularly in the skeleton.” CDC Nat’l Biomonitoring Program, *Biomonitoring Summary for Lead* (2017). Dr. Sample admitted that assessment of blood lead levels is the “gold standard” when evaluating patients for lead exposure in clinical practice. Dep. (10/3/23) 534:3.

[REDACTED] Ex. 15, Bithoney Dep.

62:24-66:10. [REDACTED]

[REDACTED] Dep. (10/3/23) 446:11-18. Dr. Sample's decision to ignore Plaintiffs' blood lead levels renders her specific-causation opinions unreliable. *See Faulkner v. Arista Recs. LLC*, 46 F. Supp. 3d 365, 383 (S.D.N.Y. 2014) (excluding the opinion of an expert who "disregarded the voluminous" data and records produced by defendant, "did not review other key documents" and "rejected documents without sufficient analysis").

4. Plaintiffs' Bone Lead Levels Do Not Provide Reliable Information About Plaintiffs' Exposure To Lead In Flint's Water During The Water Crisis

Instead of using evidence of Plaintiffs' blood lead levels, Dr. Sample relies on bone lead levels. *E.g.*, Report (Y.A.) 23. Dr Sample justified that approach on the ground that "it would be much harder" to "diagnose the seven plaintiffs" using blood lead levels. Dep. (10/2/23) 120:5-9. Dr. Sample's opinions based on bone lead levels are unreliable and should be excluded for the reasons set forth in VNA's motion to exclude the Testimony and Reports of Dr. William G. Bithoney, filed in the Bellwether I case. *See* Bithoney BWI Mot. 32-37, PageID.19854-19859.

Additionally, as explained in VNA's motion to exclude the Opinions and Testimony of Dr. Aaron Specht filed in Bellwether I (ECF No. 343, PageID.21603), and for the reasons set forth in VNA's forthcoming motion to exclude Dr. Specht's opinions, the methodology employed to measure Plaintiffs' bone lead levels is not

reliable. But even if the measurements were accurate, Plaintiffs’ bone lead levels cannot show that Plaintiffs were exposed to increased lead from tap water during the water crisis because there is no reliable way to connect bone lead levels to exposure from any particular source or during any particular time frame. Accordingly, bone lead levels do not establish the exposure required for Dr. Sample’s specific-causation opinions. Those opinions are thus unreliable and should be excluded.

B. Dr. Sample Does Not Provide Reliable Evidence About The Level Of Exposure Necessary To Cause Plaintiffs’ Injuries

In addition to establishing a plaintiff’s actual exposure, an expert opining on specific causation must present reliable evidence about the level of exposure necessary to cause the plaintiff’s particular injuries. *See Powell-Murphy*, 333 Mich. App. at 250 (plaintiffs must provide evidence of “specific exposure level” showing that it was “toxic and harmful”). Dr. Sample fails to do so.

1. Dr. Sample Fails To Provide Any Evidence That Plaintiffs’ Bone Lead Levels Were Sufficient To Cause Their Injuries

Dr. Sample relies on measurements of Plaintiffs’ bone lead to demonstrate their exposure to lead, but she provides no evidence that the degree of lead exposure associated with Plaintiffs’ bone lead levels is capable of causing their specific injuries. She does not identify a single study suggesting that Plaintiffs’ bone lead levels are even statistically associated with injuries, much less that they indicate an exposure that is sufficient to cause the particular injuries Plaintiffs allege that they

sustained. Indeed, at her deposition, Dr. Sample conceded that “[t]here have not been any studies that looked at bone lead versus adverse health effects.” Dep. (10/3/23) 352:4-6.³

That is a fatal flaw in her specific-causation opinions. As the leading resource on scientific evidence explains, “[t]he dose metrics emerging from the exposure assessment need to match the dose metrics that are used to describe toxicity risks.” Fed. Jud. Ctr., *Reference Manual on Scientific Evidence* 533 (3d ed. 2011). Here, the dose metrics Dr. Sample relies on for her exposure assessments are Plaintiffs’ *bone* lead levels. But all of the relevant studies, regulatory guidance, and even Dr. Sample’s own clinical practice, rely on *blood* lead levels to identify the health effects associated with lead exposure. As the CDC’s Agency for Toxic Substance and Disease Registry (ATSDR) notes:

Studies conducted in children have relied heavily on [blood lead] as an exposure metric. Although bone or tooth [lead] measurements may be informative, few studies have been conducted in children. . . . An association between a health outcome and [bone lead] does not necessarily infer an association between the outcome and [blood lead] (or *vice versa*) as indicated by studies in which associations are not consistent for the two metrics.

³ The absence of any studies on the health effects of various bone lead levels in children does not justify offering an opinion that Plaintiffs’ bone lead levels are associated with particular conditions. As the Seventh Circuit has explained, “the courtroom is not the place for scientific guesswork, even of the inspired sort. Law lags science; it does not lead it.” *Rosen v. Ciba-Geigy Corp.*, 78 F.3d 316, 319 (7th Cir. 1996).

ATSDR, *Toxicological Profile for Lead 134* (2020), <https://www.atsdr.cdc.gov/toxprofiles/tp13.pdf>. [REDACTED]

[REDACTED] See pp. 13-14, *supra*.

Without some evidence that Plaintiffs' bone lead levels represent an exposure that is sufficient to cause their claimed conditions, Dr. Sample's opinions that Plaintiffs were exposed to sufficient lead to cause their injuries is unreliable. *Amorgianos v. Nat'l R.R. Passenger Corp.*, 137 F. Supp. 2d 147, 169 (E.D.N.Y. 2001), *aff'd*, 303 F.3d 256 (2d Cir. 2002) (explaining that the plaintiff's dose should be measured in the same way it is measured in the studies suggesting an association between toxin and adverse effects); *see Lee-Bolton*, 319 F.R.D. at 374-376 (rejecting expert opinion based on method of quantifying exposure that could not be validated against the standard method used to assess exposure to the substance at issue). They should be excluded as a result.

2. Dr. Sample's "No Safe Level" Opinion Is Not Admissible

Dr. Sample attempts to support her opinion on causation by asserting that there is "no safe level" of lead exposure. *E.g.*, Dep. (10/2/23) 98:10-13; *see id.* at 124:1-6, 136:9-24, 150:5-13, 152:10-14, 156:17-20, 165:3-10, 169:20-22, 202:5-10; Dep. (10/3/23) 354:17-22, 557:8-11; Rebuttal Report 1. As VNA has argued in prior briefing, this type of "no safe dose" theory is inherently unreliable. *See* Bithoney BWI Mot. 40-45, PageID.19862-19867. Indeed, this Court precluded Dr. Bithoney

from testifying that exposure to any amount of lead is harmful. Bithoney BWI Order 21, PageID.36884 (“Dr. Bithoney may not testify that *any* amount of lead is harmful.”). The Court should therefore exclude testimony by Dr. Sample that any exposure to lead is harmful and should also exclude her specific-causation opinions because they rest on that assumption.

C. Dr. Sample Did Not Reliably Exclude Alternative Sources Of Lead Or Other Alternative Causes Of Plaintiffs’ Injuries

To prove causation under Michigan law, a toxic-tort plaintiff must produce evidence that “excludes other reasonably relevant potential causes of [the] plaintiff’s symptoms.” *Powell-Murphy*, 333 Mich. App. at 249 (internal quotation marks omitted). This is known as a “differential etiology” or “differential diagnosis.” *Pluck*, 640 F.3d at 678. To perform a reliable differential etiology an expert must “make an accurate diagnosis of the nature of the disease,” “reliably rule in the possible causes of it,” and “reliably rule out the rejected causes.” *Tamraz v. Lincoln Elec. Co.*, 620 F.3d 665, 674 (6th Cir. 2010). If the expert does not identify alternative causes of disease and “reliably rule out the rejected causes,” then “the court must exclude the ultimate conclusion reached.” *Id.*; *see* Bithoney BWI Mot. 51-52, PageID.19872-19873 (describing case law requiring a reliable differential etiology).

As Dr. Sample acknowledged, children are exposed to lead from a variety of sources, including lead paint, lead dust, and lead in soil. *See, e.g.*, Report (C.D.) 11.

Yet Dr. Sample failed to systematically consider sources of lead other than Flint's water during the water crisis. A differential etiology is unreliable, and thus inadmissible, if it fails to consider other potential sources of exposure to the toxin at issue. *Pluck*, 640 F.3d at 680 (affirming district court's order excluding expert because he failed to rule out other sources of benzene exposure); *see, e.g., Rutigliano v. Valley Bus. Forms*, 929 F. Supp. 779, 790-91 (D.N.J. 1996) (excluding expert who failed to analyze the plaintiff's home or other environments to identify other possible sources of formaldehyde exposure).

As an initial matter, Dr. Sample did nothing to rule out the possibility that water consumption *before* the Flint water crisis caused Plaintiffs' alleged injuries, even though she acknowledged at her deposition that she was aware that blood lead levels were higher in Flint at some points before the water crisis than they were during the water crisis. Dep. (10/2/23) 284:5-13.

That acknowledgement was correct. As Dr. Marc Edwards has shown, there was a significant spike in water lead levels in Flint in 2011. *See* Ex. 16, Duquette Report 6-7; Finley Report 17. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Yet Dr. Sample made no

effort to rule out the possibility that they were injured entirely by exposure to lead in Flint tap water before VNA even arrived.

Instead of taking that spike and the other data showing elevated blood lead levels in Flint prior to the water crisis into account in her analysis, Dr. Sample—without any scientific investigation—just “assumed” that Plaintiffs’ alleged injuries were not caused by other sources of lead exposure. Dep. (10/3/23) 330:6-11.

That baseless assumption was most evident in her diagnosis of [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] When asked how she arrived at this conclusion, Dr. Sample said “I don’t know. I just made the assumption. I don’t know why. I mean, I just assumed that it didn’t.” *Id.* at 330:6-11.

Thus, even if the Court were to conclude that Dr. Sample's opinions that lead exposure can and did cause Plaintiffs' conditions are reliable, her opinions that the injuries were caused specifically by lead in Flint's water is not. So if permitted to give an opinion on specific causation, Dr. Sample should be precluded from testifying that Plaintiffs' injuries were caused by exposure to lead in Flint's water.

Dr. Sample also failed to systematically rule out the possibility that Plaintiffs' conditions were caused by factors other than lead exposure. While she claims to have considered, in addition to lead exposure, "(2) parental IQ and education, (3) parental health and genetics, (4) socioeconomic status (SES), (5) child health and (6) extenuating circumstances such as COVID" in her differential diagnosis, Rebuttal Report 16, her reports contain little more than some conclusory statements about the possibility of those sources playing a role in Plaintiffs' medical conditions. On this score, her reports contain nothing like the kind of systematic, rigorous scientific analysis that is required for a reliable differential etiology.

Moreover, at her deposition, Dr. Sample made statements that directly contradicted findings in her initial reports. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

As another example, at her second deposition, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

This is not a valid or reliable differential etiology. When this Court rejected VNA's argument in BWI that Dr. Bithoney's differential etiology was unreliable (Bithoney BWI Mot. 50, ECF No. 335, PageID.19872), the Court emphasized that Dr. Bithoney had questioned "each parent at length about [the] possible alternative sources of exposure, using a process that is standard in clinical practice." Bithoney BWI Order 36, PageID.36889. But Dr. Sample did not do even this. She "d[id]n't have th[e] information . . . to show what" each of the Plaintiffs' "socioeconomic status necessarily was." Dep. (3/20/24) 42:17- 44:7. She "did not ask" even one of the Plaintiffs' parents about their family history of [REDACTED] Dep. (10/3/23) 457:11-13. And when she was questioned about why she failed to ask these questions, she replied simply, "I don't know." *Id.* at 457:14-16.

Dr. Sample's failure to systematically consider and scientifically rule out other potential sources of exposure to lead or other causes of the Plaintiffs' claimed conditions renders her specific-causation opinions unreliable. *See Best*, 563 F.3d at 179; *Avila v. Willits Env't Remediation Trst.*, 2008 WL 360858, at *10 (N.D. Cal. Feb. 6, 2008) (excluding specific-causation testimony because expert failed to investigate and consider alternative sources of dioxin and "assumed that any dioxin exposure 'must' have come from" the defendant's plant); *see also Byrd v. Union Pac. R.R. Co.*, 453 F. Supp. 3d 1260, 1271 (D. Neb. 2020) ("[T]o pass muster under *Daubert*," an expert "must be able to say more than that 'Ronald was exposed to

diesel exhaust; some unknown amount of diesel exhaust can cause cancer; therefore exposure to diesel exhaust caused Ronald's lung cancer.' This is the type of opinion that is connected to the data only by the *ipse dixit* of the expert and need not be accepted by the court"). The Court accordingly should exclude Dr. Sample's specific-causation opinions. *See Tamraz*, 620 F.3d at 673-74.

CONCLUSION

The Court should grant VNA's motion to exclude the opinions and testimony of Dr. Jennifer Sample that are discussed above.

Respectfully submitted,

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Dated: April 3, 2024

CERTIFICATE OF SERVICE

I hereby certify that on April 3, 2024, I electronically filed the foregoing document with the Clerk of the Court using the ECF System, which will send notification to the ECF counsel of record.

Respectfully submitted,

/s/ James M. Campbell

Dated: April 3, 2024